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EXAMINER	
LE, TRAN Q	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/084,997	RUTLEDGE ET AL.	
	Examiner	Art Unit	
	Tran Q. Le	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19,31-37* is/are rejected.

7)☒ Claim(s) *20-30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *March 01, 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because most of structure blocks are covered in black and no detailed labelings are seen. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either

"Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> **A person shall be entitled to a patent unless –**
>
> **(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.**

4. Claims 1-4, 10-14, 31-33 are rejected under 35 U.S.C. 102(e) as being unpatentable over Ge et al. (US Pub No. 2002/0018263).

Regarding claim 1, Ge discloses an apparatus for providing dynamic bandwidth control to a broadcast optical communications network (fig. 1), comprising: a network element to communicate downstream to users, comprising:

a demultiplexer (16, fig. 1) to separate a received optical communications signal (11, fig. 1), carrying a mixture of broadcast and targeted communications services for users (abstract), into a plurality of wavelengths (1...N);

a plurality of splitters (51, fig. 1), each splitter to receive one of said plurality of wavelengths as an input signal, and to split said input signal into a plurality of output signals (1...n);

at least one optical cross-connect switch (18, fig. 1) to receive said plurality of output signals (52, fig. 1) from said splitters, and to connect each output signal to a pre-determined output port (64, fig. 1 and p. 4, par. 0046); and

a plurality of combiners (32, fig. 1), each combiner having at least one more input signal (arrowed inputs from control unit 20, fig. 1) than the number of output signals (1...n) for each said splitter wherein the at least one more input signal carries at least one control channel (p. 6, par. 0066-0067), operating on a control wavelength (p. 6, par. 0066, a single wavelength on each input WDM fiber 12), to control selection of the pre-determined output ports by the switch (p. 4, par. 0046), and each combiner (32, fig. 1) to receive, combine, and output a plurality of said output signals from said switch (48(1)...48(N), fig. 1).

Regarding claim 2, Ge discloses at least one amplifier (14, fig. 1) to amplify said received optical communications signal (11, fig. 1) and output the amplified signal (output of 14, fig. 1) to said demultiplexer (16, fig. 1).

Regarding claim 3, Ge discloses at least one auxiliary input port (12(N), fig. 1) to input at least one additional optical communications signal into said switch (18, fig. 1); and at least one auxiliary output port (48(N), fig. 1) to output said additional signal from said switch (p. 3, par. 0037).

Regarding claim 4, Ge discloses the additional optical communications signal is input from an alternate communications network (p. 2, par. 0017).

Regarding claim 10, Ge discloses a network element (fig. 1) to communicate upstream within an optical communications network (p. 2, par. 0017, data packet switching in a wavelength domain among nodes suggests upstream/downstream communications within an optical communication network), comprising:

a plurality of demultiplexers (16, fig. 1), each demultiplexer to separate a received optical communications signal (11, fig. 1) into a plurality of output wavelengths (1...N);

at least one optical cross-connect switch (18, fig. 1) to receive said plurality of output wavelengths (52, fig. 1) from said demultiplexers, and to connect each output signal to a pre-determined output port (64, fig. 1 and p. 4, par. 0046); and

at least one combiner (32, fig. 1) having at least one more input signal (arrowed inputs from control unit 20, fig. 1) than the total number of output wavelengths (1...n) for each said demultiplexer wherein the at least one more input signal carries at least one control channel (p. 6, par. 0067), operating on a control wavelength, to control selection of the pre-determined output ports by the switch (p. 4, par. 0046), and at least one combiner (32, fig. 1) to receive and combine a plurality of said output wavelengths from said switch, and to output the combined signal carrying the output wavelengths (48(1)...48(N), fig. 1).

switch controller (20, fig. 1) to monitor said switch including the ports (p. 3, par. 0038), and to receive and process information carried by said control channel (p. 3, par. 0038), said control channel being carried by said received optical communications signal, and to output said control channel into said optical switch (p. 4, par. 0046); and wherein the input of said control channel into said switch to initiate switching (p. 4, par. 0046), for a pre-determined interval, of the splitter output signals (outputs of 51, fig. 1) to said pre-determined output ports as selected by the control wavelength (p. 4, par. 0048).

Regarding claim 11, Ge discloses a switch controller (20, fig. 1), interconnected to the upstream network element (p. 2, par. 0017, data packet switching in a wavelength domain among nodes suggests upstream/downstream communications within an optical communication network), to monitor said switch including the ports (p. 3, par. 0038), and to receive and process information carried by said at least one control channel (p. 3, par. 0038), said at least one control channel being carried by each received optical communications signal, and to output said at least one control channel into said optical switch (p. 4, par. 0046); and wherein the input of said control channel into said switch to initiate switching (p. 4, par. 0046), for a pre-determined interval, of the splitter output signals (outputs of 51, fig. 1) to said pre-determined output ports as selected by the control wavelength (p. 4, par. 0048).

Regarding claim 12, Ge et al. in paragraphs 0046, 0050 and 0054 discloses a mixture of broadcast and targeted communication services by controlling the switch block. Although Ge et al. does not mention the services including business and

residential users, the services provided by the network is not patentable. Furthermore, the network of Ge et al. inherently can provide such services. Therefore, it would have been obvious to use the network of Ge et al. to provide any type of communication services including business or residential services.

Regarding claim 13, the network of Ge et al. supports IP communications services (par. 0003, 0018, 0021, etc.). As to the Ethernet, due to large bandwidth of optical network, the network of Ge et al. inherently can support Ethernet communication and would have been an obvious modification of the network of Ge et al.

Regarding claim 14, Ge discloses an apparatus for providing dynamic bandwidth control to a broadcast optical communications network (fig. 1), comprising: a network element for communicating downstream to users:

a demultiplexer (16, fig. 1) to separate a received optical communications signal (11, fig. 1), carrying a mixture of broadcast and targeted communications services for users (abstract), into a plurality of wavelengths (1...N);

a plurality of splitters (51, fig. 1), each splitter to receive one of said plurality of wavelengths as an input signal, and to split said input signal into a plurality of output signals (1...n);

at least one optical cross-connect switch (18, fig. 1) to receive said plurality of output signals (52, fig. 1) from said splitters, and to connect each output signal to a pre-determined output port (64, fig. 1 and p. 4, par. 0046); and

a plurality of combiners (32, fig. 1), each combiner having at least one more input signal (arrowed inputs from control unit 20, fig. 1) than the number of output signals (1...n) for each said splitter wherein the at least one more input signal carries at least one control channel (p. 6, par. 0067), operating on a control wavelength, to control selection of the pre-determined output ports by the switch (p. 4, par. 0046), and each combiner (32, fig. 1) to receive, combine, and output a plurality of said output signals from said switch (48(1)...48(N), fig. 1); and

a switch controller (20, fig. 1) to monitor said switch including the ports (p. 3, par. 0038), and to receive and process information carried by said control channel (p. 3, par. 0038), said control channel being carried by said received optical communications signal, and to output said control channel into each combiner (arrow input to 30, fig. 1 and p. 2, par. 0022).

Regarding claim 31, Ge discloses a method to provide dynamic bandwidth control to a broadcast optical communications network, comprising:

receiving and separating an optical communications signal (11, fig. 1) into a plurality of wavelength signals (1...N);

splitting each wavelength signal into a plurality of splitted input signals (1...n);

connecting each input signal (52, fig. 1) to a pre-determined output port (64, fig. 1) to generate an output signal; and

combining pre-determined groups of output signals (λ1..λn inputs of 30, fig. 1) together to generate a plurality of grouped output signals, where the grouped output signals each include at least one more output signal (arrow input from the control unit 20, fig. 1) than splitted input signal wherein the at least one more output signal carries at least one control channel (p. 6, par. 0067), operating on a control wavelength (p. 6, par. 0066), to control connecting of the splitted input signals to the output ports.

Regarding claims 32 and 33, although Ge et al. do not disclose the communication that includes either audio or video as discussed above, the service provided by the system is not patentable. Furthermore, the network of Ge et al. inherently can be used to carry such services. In addition, examiner takes official notice that using optical network for connecting audio and/or video is extremely well known in the art. Therefore, it would have been obvious to an artisan to use the network of Ge et al. to carry any type of data including audio data.

5. Claims 34-36 are rejected under 35 U.S.C. 102(e) as being unpatentable over Fuse et al. (US Patent No. 5,541,757).

Regarding claim 34, Fuse discloses a method of providing a broadcast optical communications network (fig. 3), comprising:

receiving an optical communications signal carrying broadcast communications services for users (col. 4, lines 49-56); and

scheduling a portion of the broadcast communications services to be delivered as separate, targeted communications services to a pre-determined group of users (group A, group B, fig. 3 and col. 5, lines 18-30).

Regarding claim 35, Fuse discloses the targeted communications services share at least one common wavelength with the broadcast communications services (fig. 3; col. 3, lines 40-46 and col. 4, lines 45-48).

Regarding claim 36, Fuse inherently teaches the scheduling occurs at a pre-determined periodic time of the day (col. 5, lines 18-30, it is well known in the art that the normal broadcasting service selected by the subscribers can always be scheduled at a pre-determined time of the day).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> **(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.**

7. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ge et al. (US Pub No. 2002/0018263) in view of Motley et al. (US Patent No. 5,682,256).

Regarding claim 5, Ge discloses all the aspects of claims 1-4, but fails to disclose the alternate communications network is a wireless communication network.

However, Motley teaches a communication system with an NXM switch that is an interface between an optical network (2, 4, fig. 1) and a wireless communication network (RF links, fig. 1).

Therefore, as was taught by Motley, it would have been obvious to have a wireless communications network used as an alternate communication network connecting to the optical communication network of Ge via an auxiliary I/O port of the optical switch in order to provide additional services for another network via an optical communication network.

Regarding claim 6, Ge discloses all aspects of the claimed invention, except fails to teach the additional signal to communicate between a base station and a mobile telephone switching office in the wireless communications network via connection to a plurality of other auxiliary input and output ports on a plurality of other optical switches.

However, Motley teaches radio transceivers (15, fig. 1) connected through a switch (17, fig. 1) to a number channels (K) of another network which may be ISDN, cellular, LAN, PBX, etc. (fig. 1 and col. 3, lines 1-10) from connections to an optical network (2, 4, fig. 1).

Therefore, as was taught by Motley, it would have been obvious to use the additional signal of the optical switch of Ge to communicate between a base station and a mobile telephone switching office in the wireless communications network via connection to a plurality of other auxiliary input and output ports on a plurality of other

optical switches in order to provide communication between different networks via an optical communication network.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ge et al. (US Pub No. 2002/0018263) in view of Fatehi et al. (US Patent No. 6,512,612).

Regarding claim 9, Ge discloses a switch controller (20, fig. 1) to monitor said switch including the ports (p. 3, par. 0038), and to receive and process information carried by said control channel (p. 3, par. 0038), said control channel being carried by said received optical communications signal, and to output said control channel into said optical switch (p. 4, par. 0046); and wherein the input of said control channel into said switch to initiate switching (p. 4, par. 0046) of the splitter output signals (outputs of 51, fig. 1) to said pre-determined output ports as selected by the control wavelength (p. 4, par. 0048).

Ge differs from the claimed invention in that he does not teach the switching is taking place for a pre-determined interval.

However, Fatehi teaches a space switch allows switching of input and output wavelength channels in the order of few milliseconds or less (col. 5, lines 14-18).

Therefore, it would have been obvious for one ordinary skill in the art at the time the invention was made to use a space switch of Fatehi in the optical communication system of Ge in order to provide high switching effect for data routing between nodes.

9. Claims 7-8, 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ge et al. (US Pub No. 2002/0018263) in view of Wang (US Patent No. 6,529,301).

Regarding claim 7, Ge discloses all the aspects of claims 1 and 3, but fails to teach the communication signal is an additional wavelength signal input into the switch as determined by the control channel.

However, Wang teaches an optical switching node with a communication signal (462B) is an additional wavelength signal input (e.g. 462B') into the switch (492) as determined by the control channel (490,fig. 1) (p. 3, par. 0049).

Therefore, it would have been obvious to use an optical switching of Wang in the apparatus of Ge in order to provide additional channel for different services to/from an alternate communication network.

Regarding claim 8, Ge still fails to teach an optical transponder to convert an existing wavelength, one of the plurality of wavelengths output by the demultiplexer, into the additional wavelength.

However, Wang teaches an optical transponder (fig. 1, e.g. 472B-D) to convert an existing wavelength (e.g. 462B), one of the plurality of wavelengths output by the demultiplexer (452, fig. 1), into the additional wavelength (462B', fig. 1) (p. 3, par. 0049).

Therefore, it would have been obvious to use an optical transponder of Wang in the apparatus of Ge in order to provide a wavelength conversion from its present

wavelength onto a different wavelength specified by the control signal sent by the controller to distribute to different services via the current communication network.

Regarding claim 15, Ge disclose a control system to provide dynamic bandwidth control to a broadcast optical communications network (fig. 1), comprising: a network element to communicate downstream to users, comprising:

a demultiplexer (16, fig. 1) to separate a received optical communications signal (11, fig. 1), carrying a mixture of broadcast and targeted communications services for users (abstract), into a plurality of wavelengths (1...N);

a plurality of splitters (51, fig. 1), each splitter to receive one of said plurality of wavelengths as an input signal, and to split said input signal into a plurality of output signals (1...n);

at least one optical cross-connect switch (18, fig. 1) to receive said plurality of output signals (52, fig. 1) from said splitters, and to connect each output signal to a pre-determined output port (64, fig. 1 and p. 4, par. 0046); and

a plurality of combiners (32, fig. 1), each combiner having at least one more input signal (arrowed inputs from control unit 20, fig. 1) than the number of output signals (1...n) for each said splitter wherein the at least one more input signal carries at least one control channel (p. 6, par. 0067), operating on a control wavelength, to control selection of the pre-determined output ports by the switch (p. 4, par. 0046), and each combiner (32, fig. 1) to receive, combine, and output a plurality of said output signals from said switch (48(1)...48(N), fig. 1).

Ge differs from the claimed invention in that he does not teach a system software module to control and monitor a network element.

However, Wang teaches a system software module to control and monitor a network element (controller, fig. 1 and p. 1, par. 008, 0010).

Therefore, it would have been obvious for one ordinary skill in the art at the time the invention was made to use a controller as a system software controller such as the one of Wang in a control system of Ge in order to provide network management and monitoring for data transmission between switching nodes in a network.

Regarding claim 16, Wang further teaches the system software module includes a processor to perform one of receiving at least one command over said control channel (462A, fig. 1) and executing said at least one command (fig. 1 and p. 4, par. 0010-0011), and generating a message to send over said control channel (p. 1, par. 0013).

Regarding claim 17, Wang discloses the processor to execute said at least one command by enabling or disabling a portion of the network element based on said at least one command (p. 1, par. 0007) and providing a feedback response (CONNECTION_CONFIRM message) on the execution of said at least one command (p. 1, par. 0012-0013), the response including the condition of the network element portion (p. 5, par. 0066).

Regarding claim 18, as discussed above, paragraphs 0046, 0050 and 0054 of Ge et al. discloses broadcast communication services, therefore, it must include one broadcast. In addition, their system supports IP communication, therefore, it must

include one direct command. Furthermore, the router or header information for routing or controlling the switch block corresponds to the claimed "chained command".

Regarding claim 19, Wang discloses the processor to generate a message at pre-determined intervals (p. 5, par. 0067), the message carrying information about the current condition of the network element (p. 5, par. 0066).

10. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuse et al. (US Patent No. 5,541,757).

Regarding claim 37, Fuse et al. disclose a mixture of broadcast and targeted communications signal providing services for users by controlling the selector for users (col. 4, lines 49-56). Although Fuse does not disclose users for broadcast communication services are business users and the users of the targeted communications services are residential users, the services provided by the network is not patentable. Furthermore, the network of Fuse inherently can provide such services. Therefore, it would have been obvious to use the network of Fuse to provide any types of communication services including business or residential users.

Allowable Subject Matter

11. Claims 20-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 20, the prior art of record fails to teach specifically an element management system programmable to interface with at least one system software module over the control channel including providing a graphical user interface to receive user requests and to translate the user requests into at least one command to send the system software module, and to receive a response from the system software module verifying the completion of the at least one command sent to the module.

Regarding claim 23, the prior art of record fails to teach specifically a network management system programmable to interface with at least one element management system over the control channel; and wherein the network management system including a services enabling module to provide targeted communications services to users, and including a network state machine that includes a network state table to provide information about the current state of the optical communications network.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ge et al. (US Pub. No. 2002/0057861 A1) is cited to show an optical IP switching router architecture with control unit for processing data packets.

Sotom et al. (US Patent No. 5,896,212) is cited to show a wavelength division multiplexing optical communication network with a control unit controlling the switching of a space switch.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran Q. Le whose telephone number is (571)272-2046. The examiner can normally be reached on 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TQL

M. R. SEDIGHIAN
PRIMARY EXAMINER